

Serial No. 10/618,603

Amendment Dated January 23, 2006

Reply to Office Action Mailed August 22, 2005

Attorney Docket No. 101249.52600US

Amendments to the Specification:

Please insert the following new paragraph to begin on page 5 at line 5:

An antenna may be disposed in the process chamber so as to provide a linear and/or curved line.

Please delete the paragraph beginning at page 10, line 31, and replace with the following amended paragraph:

In the embodiment show in Fig. 2, the microwaves propagating in the rectangular waveguide 11d, etc., from the microwave power supply 10 are distributed into plural voltage-drawing rods 17 disposed in a plurality of holes 16 which are provided in the resonator 11a. In general, the voltage-drawing rod [10a] 17 is protected by an insulating tube (a quartz tube, for example) 18, so that the voltage-drawing rod 17 does not contact the plasma directly. In addition, the process chamber 1 side is vacuum-sealed by the insulating tube 18 and an O-ring (not shown). Accordingly, the voltage-drawing rods 17 are supported with respect to the holes 16 by means of insulators 20 (for example, polytetrafluoroethylene). The voltage to be drawn to the voltage-drawing rods 17 may be changed depending on the height (degree of projection) of the voltage-drawing rod 17 in the resonator 11a.

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Please delete the paragraph beginning at page 12, line 12, and replace with the following amended paragraph:

Referring to the schematic perspective view of Fig. 4, another embodiment of the arrangement of plural antennas is described. In this embodiment, a transmission line comprising a voltage-drawing rod 17 and an insulating tube 18 penetrates a chamber wall 1a (instead of the [top] top plate 3), and is supported by the chamber wall 1a in a cantilever state. In view of the effective drawing of a high voltage, the position of the voltage drawing by the voltage-drawing rod 17 in the waveguide 11d may preferably be such that the position corresponds to $\{(1+2m)/2\} \lambda_g \pm (1/4) \lambda_g$ (λ_g : guide wavelength; m: integer) from the terminal of the waveguide. When the guide wavelength in the waveguide is changed due to the absorption of plasma, for example, the drawing potential can be changed by finely adjusting the terminal face of the waveguide by use of a plunger.

Please delete the paragraph beginning at page 18, line 21, and replace with the following amended paragraph:

The schematic perspective views of Fig. 22 and Fig. 23 show an example of such an embodiment. In these figures, the ground line 32 is usually constituted by a coaxial line. Referring to Fig. 22, the ground line 32 of the transmission line in the process chamber 1 is constituted by a coaxial line which comprises a core

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wire 33b, and the inner wall of an electroconductive tube, or an insulating tube 33a of which the outside is covered with plating. When the covering or coating of the ground line 32 is removed with respect to a part of the coaxial line, the resultant opening portion 32a provides a high impedance ~~in view of the impedenee~~, so that the voltage is elevated. A strong electric field can be generated by the resultant high potential so as to ignite a plasma. In addition, the microwave energy is supplied from the opening portion 32a, and the plasma begins to spread outward from this point depending on an increase in the electric power. In other words, it is possible to determine the position of this opening portion 32a so that it can provide a desired plasma distribution.